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Analogous operations are also performed by control means 40 to inflate and regulate the second sleeve 24. In particular, deenergizing signals are maintained at each of the feeder valves 26a-d and first intermediate valve 25 so that the first sleeve 22 remains in a deflated state. To begin inflation of the first chamber 24a, control means 40 provides energizing signals to open the source valve 32 and the second intermediate valve 27 and also provides energizing signals to feeder valves 28b-d to maintain them in the blocking state. Accordingly, a connection is provided between the source 20 and first chamber 24a at the beginning of the second inflation cycle.

As described above, means, such as a membrane switch at the display 15 or an RS232 data port, may also be provided to allow adjustment of the controller 10 so that a 2, 3, ..., N-chamber mode of operation may be readily achieved in either sleeve. For example, a controller 10 having a 2-sleeve/4-chamber default configuration as described herein, can be converted to a 3-chamber system by selecting this mode at the display 15. Based on this selection, control means 40 would disable normal operations for inflating fourth chambers 22d, 24d by continuously providing energizing signals to feeder valves 26d or 28d to maintain them in a blocking state. Similarly, four chamber operation in the first sleeve and two chamber operation in the second sleeve can be selected. In this mode, control means 40 would disable normal operations for inflating third and fourth chambers 24c-d, by continuously providing energizing signals to feeder valves 28c-d to continuously maintain them in a blocking state during the second inflation cycle.

Referring now to FIG. 5, the valve manifold 30 is illustrated in greater detail. In particular, the first and second output ports 17a-b and associated conduits 17c-d are provided for pneumatically

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connecting each of the outputs of the feeder valves 26a-d and 28a-d to respective ones of the conduits 54.

In addition, energizing and deenergizing control signals from control means 40 to feeder valves 26a-d and 28a-d and first and second intermediate valves 25, 27 are provided by electrical connections 29, as shown.

Referring now to FIG. 7, a compression system according to a second embodiment of the present invention will be described. This embodiment is functionally similar to the first embodiment, but has notable differences as described more fully hereinbelow. According to this embodiment, the compression system comprises a system controller 10' for controlling transfers of pressurized air from an internal or external source 20' to a plurality of inflatable chambers 22a-d and 24a-d during respective inflation cycles and for venting the source 20' at vent "V" during respective deflation cycles and typically also when the pressure in any chamber is being measured after the respective chamber has been inflated to a predetermined level. For purposes of illustration only, dotted-lines have been used to show pneumatic connections and solid-lines have been used to show electrical connections. The system controller 10' further comprises first and second pluralities of feeder valve means 26', 28' for enabling and disabling transfers of air from the pressurized air source 20' to the inflatable chambers 22a-d and 24a-d. Each of the four feeder valve means in the first and second pluralities 26' and 28' preferably comprises a pair of filling and monitoring valves: (F26a, M26a), (F26b, M26b), (F26c, M26c), (F26d, M26d) and (F28a, M28a), (F28b, M28b), (F28c, M28c), (F28d, M28d). The use of a pair of filling and monitoring valves provides a number of preferred advantages relative to the normally-open feeder valves 26a-d and 28a-d of FIG. 4, as described more fully hereinbelow.